

DUDKEVICH, B.N.

Balanced double T-type networks for measuring complex impedance components. Trudy Inst. avtoz. i elektrometr. SO AN SSSR no.10:20-23 '65.

Use of a phase mode for measurements in T-type bridge circuits. Ibid.:24-28 (MIRA 18:8)

DUDKEVICH, B.N. (Novosibirsk); ZHURAVLEVA, T.A. (Novosibirsk)

Conditions for the individual measurement of the components of
a complex impedance. Avtometriia no.3:88-96 '65.

(MIRA 19:1)

1. Submitted Feb. 23, 1965.

DUDKEVICH, G.A., dots.; POSADSKAYA, G.A., assistant

Cholecystenteric fistulas. Khirurgiia 34 no.9:100-101 S '58.
(MIRA 12:4)

1. Iz kafedry obshchey khirurgii (zav. - dots. G.A. Dudkevich)
Yaroslavskogo meditsinskogo insitututa (dir. - prof. N.Ye. Yarygin).
(FISTULA)

DUDKOVICH, G.A., dotsent; MEDVEDKOVA, M.M., assistant

Primary and secondary localization of echinococcosis in the female
genitalia. Akush.i gin. 35 no.5:104 S-O '59. (MIRA 13:2)

1. Is kafedry akusherstva i ginekologii (zaveduyushchiy - prof. Ye.
K. Aleksandrov) i kafedry obshchey khirurgii (zaveduyushchiy - dotsent
G.A. Dudkevich) Yaroslavskogo meditsinskogo instituta.
(GENITALIA, FEMALE, diseases)
(ECHINOCOCCOSIS)

DUDKEVICH, G. A.

"Hydatid Disease According to Material from the Central Republic Hospital in the City of Ulan Bator, Mongolian People's Republic, Over a Period of 16.5 Years."

Tenth Conference on Parasitological Problems and Diseases with Natural Reservoirs, 22-29 October 1959, Vol. II, Publishing House of Academy of Sciences, USSR, Moscow-Leningrad, 1959.

Yaroslavl' Medical Institute

DUDKEVICH, G.A., dotsent

Data from a study of the possibility of an invasion of embryonic elements of Echinococcus through uninjured chitin membranes and fibrous capsule. Khirurgia 37 no.3:93-96 Mr '61. (MIRA 14:3)

1. Iz kafedry obehohey khirurgii (sav. - dotsent G.A. Dudkevich)
Yaroslavskogo meditsinskogo instituta.
(TAPEWORMS)

DUDKEVICH, G.A.

Brerhophlastic transplantation of the skin on granulating wounds
and trophic ulcers in old age. Trudy MOIP.Otd.biol.6:210-214, '62.
(MIRA 16:7)

1. The Jaroslavl State Medical Institute, Chair of General Sur-
gery.
(SKIN GRAFTING) (AGED--DISEASES)

YETS, A.G., dotsent; DUDKEVICH, G.A., dotsent; ANDREYEV, B.I.

Surgical treatment of acute cholecystitis. Sov. med. 27 no.11:
74-78 N '63 (MIRA 18:1)

1. Iz kliniki obshchey khirurgii Yaroslavskogo meditsinskogo
instituta.

YETS, A.G.; DUDKEVICH, G.A.; ZIL'BERBORD, B.Sh.; BORSHCHEVSKAYA, V.A

Potential local anesthesia in thyrotoxic goiter surgery. Sov. med.
28 no.4:45-48 Ap '64. (MIRA 17:12)

1. Klinika obshchey khirurgii (zav. - dotsent G.A. Dudkevich)
Yaroslavskogo meditsinskogo instituta.

GLOWINSKI, Mieczyslaw; DUDKIEWICZ, Jan; KUDLA, Teodor

Determination of the time of labor with the aid of cytological
smears. Pol. tyg. lek. 19 no.30:1148-1150 27 JI'64

1. Z I Kliniki Położnictwa i Chorob Kobietych Sl. Akademii
Medycznej w Zabrze; kierownik : prof. dr. M. Glowinski.

GIOWINSKI, Mieczyslaw; LIPSKI, Jozef; CHRUSCIEL, Andrzej; DUDKIEWICZ, Jan

Clinical value of Smyth's test and vaginal smears in the determination of the time of labor. Pol. tyg. lek. 20 no.25:921-923
21 Jo '65.

1. Z I Kliniki Położnictwa i Chorob Kobietych Śląskiej AM w Zabrze
(Kierownik: prof. dr. med. Mieczysław Głowinski).

GLOWINSKI, Mieczysław; DUDKIEWICZ, Jan; LIPSKI, Józef; CHRUSCIEL, Andrzej

Relation of cytological changes of the vaginal epithelium to
exogenous oxytocin. Ginek. Pol. 36 no.6:663-665 Je '65.

1. Z I Kliniki Położnictwa i Chorob Kobietych Śląskiej Akademii
Medycznej w Zabrze (Kierownik: prof. dr. med. M. Glowinski).

GLOWINSKI, Mieczyslaw; DUDKIEWICZ, Jan

False protracted pregnancy in the light of cytologic examinations.
Ginek. Pol. 36 no.4:405-411 Ap '65.

1. Z I Kliniki Położnictwa i Chorób Kobietych Śląskiej AM w Zabrze
(Kierownik: prof. dr. med. M. Glowinski).

DUDKIEWICZ, Jerzy

Skin diseases, an important problem. Wiadom gorn 11 no. 1/2:39-41
Ja-F '60.

DUDKIN, A.

DZIUBEAN, N.; DUDKIN, A.

Fish Culture

Reproduction of the *Rutilus frisii*. Ryb. khoz. 28 no. 1, 1952.

9. Monthly List of Russian Accessions, Library of Congress, _____ April ¹⁹⁵² ~~1953~~, Uncl.

DUDKIN, A. (Kiyev)

~~SECRET~~
We have mastered the production of sewing disks. Frem. keep. no. 8:21
Ag '56. (MIRA 9:10)

1. Zamestitel' predsedatelya pravleniya arteli "Metallotrud".
(Kiev--Agricultural machinery)

DUDKIN, A. A.

PA 20/49T38

USSR/Electricity
Telegraph Equipment
Static

Oct 48

"Devices for Controlling Static in Telegraph Apparatus," A. A. Dudkin, Laureate of Stalin Prize, 2 pp

"Vest Svyazi - 'Elektrosvyaz'" No 10

Analyses interference in the three basic systems of letter-printing apparatus: (1) synchronous apparatus with cyclic cipher (Yuz), (2) synchronous apparatus with five-place cipher (Bodo and others), and (3) start-stop apparatus (ST-55 and others). Includes four diagrams.

20/49T38

1. DUDKIN, A. S.
2. USSR (600)
4. Spillways
7. Sludge ice funnel. Gidr. stroi. 22, No. 3, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953. Unclassified.

DUDKIN, A.S., kandidat tekhnicheskikh nauk.

Examining the separation of bottom alluvium by two water outlet dividers.
Gidr.i mel. 5 no.5:61-70 My '53. (MLRA 6:6)
(Sedimentation and deposition)

DUDKIN, A.S., kandidat tekhnicheskikh nauk.

Operation of a sedimentation basin on a main canal. Gidr.1 mel. 5 no.9:57-
61 S '59. (MLHA 6:9)

(Sedimentation and deposition) (Canals)

DUDKIN, A.S., kandidat tekhnicheskikh nauk; ORLOV, I.Ya., kandidat tekhnicheskikh nauk; USHAKOV, A.P., kandidat tekhnicheskikh nauk.

Some results of investigations of channel processes in sections of rivers flowing through a plain. Vop.gidr.no.1:113-124 '55.
(Hydraulics) (MLRA 9:12)

DUDKIN, A.S., kandidat tekhnicheskikh nauk

Observations on the design of the DDP-30s model of sprinkler.
Sel'khoz mashina no.10 0'55. (MLRA 8:12)

1. Sredneaziatskiy Nauchno-issledovatel'skiy Institut irrigatsii
(Sprinklers)

DUDKIN, A.S., kand.tekhn.nauk

Use of mineralised (drainage and underground) waters for farm crop
irrigation in the Golodnaya Steppe. Trudy SANIIRI no.106:9-14 '60.
(MIRA 14:5)

(Golodnaya Steppe—Irrigation)
(Water, Underground)

DUDKIN, B.F.

Spun concrete. Oidr. i mel. 8 no. 4:47-48 Ap '56.

(MLRA 9:8)

1. Starshiy inzhener kontory podsobnykh predpriyatiy.
(Concrete construction)

DUDKIN, Fedor Ivanovich; FAIALIYEVA, T.P., red.; GUBIN, M.I., techn.red.

[Ways of increasing labor productivity in the iron ore industry;
example of miners in the Krivoy Rog Basin] Rezervy povysheniia
proizvoditel'nosti truda v zheleznorudnoi promyshlennosti; na
primere rudnikov Krivorozhskogo basseina. Moskva, Izd-vo "Znanie,"
1958. 38 p. (Vsesoiuznoe boshchestvo po rasprostraneniuiu politiche-
skikh i nauchnykh znanii. Ser. 3, no.2) (MIRA 11:4)
(Krivoy Rog Basin—Iron mines and mining)

DUDKIN, I.

BAKHVALOV, I., direktor; STEPANOV, V., zavednyushchiy partkabinetom; ZYUZIN, S., freserovshchik-rastechnik; ESSENOKRATOV, V., inzhener; KOZHEVNIKOVA, M., nachal'nik tokarno-otdelochnogo otdeleniya, laureat Stalinskoy premii; UL'YANOV, M., predsedatel' tsekhkoma sborochnogo tsekha; MAUMOV, A., brigadir komzol'sko-molodeshnoy brigady; DUDKIN, I., dotsent, direktor; ZHUKOV, P., tokar'.

[In a progressive plant; accounts of workers and technical engineering workers of the Moscow Order of the Red Banner of Labor Second State Bearing Plant] Naпередovom zavode; rasskazy rabochikh i inzhenerno-tekhnicheskikh rabotnikov Moskovskogo ordena Trudovogo Krasnogo Znameni 2-go Gosudarstvennogo podshipnikovogo zavoda. [Moskva] Profizdat, 1952. 94 p. (MLRA 6:5)

1. Moskovskiy ordena Trudovogo Krasnogo Znameni vtoroy Gosudarstvennyy podshipnikovyy zavod. 2. Vecherniy mashinostroitel'nyy institut (for Dudkin). (Efficiency, Industrial)

Dudkin, I. A.

ATAMANCHUKOV, G.D.; GORBUNOV, I.G.; DUDKIN, I.A.

Experimental data on pressure-operated resin-extracting batteries.
Gidrelin. 1 lesokhim.prom. 8 no.5:18-19 '55. (MLRA 9:1)

1. Tsentral'nyy nauchno-issledovatel'skiy lesokhimicheskiy institut
(for Atamanchukov). 2. Nevo-Belitskiy lesokhimicheskiy kombinat (for
Gorbunov, Dudkin).
(Gums and resins)

DUDKIN, L. D.

DUDKIN, L. D. --"Investigation of the Thermoelectric Properties of Cobalt Antimonides." Inst of Metallurgy imeni A. A. Baykov, Acad Sci USSR. Moscow, 1955. (Dissertation for the Degree of Candidate in Technical Science).

SD Knizhnyy letopis'
No 2, 1956

137-58-4-8073

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 243 (USSR)

AUTHORS: (Dudkin, L. D., Abrikosov, N. Kh.

137-58-4-8073

An Investigation of the Thermoelectric Properties of Cobalt Antimonides

thermal conductivity of the alloys. The existence of a new compound, ξ -CoSb₃, formed by a peritectic reaction at 859°C, was established. It has a body-centered cubic lattice of the type of skutterudite [(Co, Ni)As₃] (a= 9.01 angstrom, Fedorov group I_n^{15}). Curves for the relation to temperature of the specific conductivity and the thermoelectromotive force for alloys similar in composition to the compounds CoSb₃ and CoSb₂ demonstrate the latter to be semiconductors. The width of the forbidden region in CoSb₂ and CoSb₃ is 0.2 and 0.5 electron volt, respectively, and the thermal conductivity rate of the lattice is $11 \cdot 10^{-3}$ and $12.3 \cdot 10^{-3}$ cal/degree C·cm·sec, respectively. The electron mobility in the CoSb₃ lattice is 290 cm²/v·sec. Investigations of the Co-Ni-Sb ternary system have revealed a continuous series of solid solutions between the γ phases of the binary systems and the terminations of a number of solid solutions based on the ξ -CoSb₃ compound. The ternary solid ξ solution spreads deep into the triangle of concentration until attainment of Ni:Co= 1:9. The C of the ξ phase increases with increase in the Ni content, as the Ni apparently forms donor levels with low energies of activation in the forbidden region of CoSb₃, and yields excess electrons to the conducting region at relatively low temperatures, in which case the thermal conductivity of the lattice diminishes considerably. The temperature dependence of the C and the thermoelectromotive force also change significantly.

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P.S.

DUDKIN, L.D.

USSR/Physical Chemistry - Thermodynamics, Thermochemistry, Equilibria,
Physical-Chemical Analysis, Phase Transitions.

B-8

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3799.

Author : L.D. Dudkin, N.Kh. Abrikosov.

Inst :

Title : Study of Nickel Influence on Properties of Semiconductor
Compound CoSb .

Orig Pub: Zh. neorgan. khimii, 1957, 2, No 1, 212-221.

Abstract: The influence of Ni additions on the properties of the semi-conductor compound CoSb_3 discovered by the authors (RZh-Khim, 1957, 71107) was studied. The measurement of thermo-electrical properties indicates a pre-eminent metallic nature of atom bonds in NiSb and NiSb_3 . An isothermal section of the ternary system Co-Ni-Sb in the range of less than 50% of Sb confirms the existence of a continuous solid solution between the δ - phases of the binary systems. The existence of a ternary solid

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USSR/Physical Chemistry - Thermodynamics, Thermochemistry, Equilibria,
Physical-Chemical Analysis, Phase Transitions.

B-8

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3799.

ε -solution on the CoSb_3 base was established; the Ni saturation limit thereof corresponds to the ratio $\text{Ni} : \text{Co} = 1 : 9$. Ni introduced into CoSb_3 produces donor admixture levels, which are completely ionized at room temperature. The electron mobility in CoSb_3 is considerably increased at $\text{Ni} : \text{Co} < 1\%$. The electron mobility decreases at higher Ni concentrations in consequence of a substantial diffusion of electron waves by Ni ions. The lattice heat conductivity of the ε -phase drops with the Ni concentration rise.

Card : 2/2

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DUDKIN, L. D.

AUTHOR: Dudkin, L. D.

57-2-5/32

TITLE: The Chemical Bond in Semiconducting Cobalt Triantimonide (Khimiches-
kaya svyaz' v poluprovodnikovom triantimonide kobal'ta).

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 2, pp. 240-244 (USSR).

ABSTRACT: Starting from the conceptions of a predominantly covalent nature of the bonds between the atoms in electron-semiconductors an approximate image of the chemical interaction in the compound CoSb_3 discovered by the author and his collaborators and described in reference 10 is given here. CoSb_3 (ϵ -phase) develops according to the phase-diagram (reference 10) in the reaction in a peritectic at 859°C . At the isothermal lines of thermoelectric properties of the cobalt-antimony alloys the compound composition shows highly distinct maxima of the electric resistance and the thermoelectromotive force with a negative sign. The temperature-measurements of the electric conductivity showed that the CoSb_3 -compound is a semiconductor with an activation-energy of the current-carriers equal to 0.49 eV. The ϵ -phase possesses a small domain of homogeneity. The deviation from the stoichiometric relation in the direction of an excess of antimony in individual samples, in the case of small (from

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0 to $+30 \mu\text{V}/^\circ\text{C}$) values of the coefficient of the thermoelectromotive force leads to a reversal of signs concerning the conductivity (All "hole"-alloys of the ξ -phase contain small quantities of eutectic, i. e. they are saturated with regard to antimony). The X-ray investigations of the structure (reference 10) showed that the CoSb_3 -compound is isomorphous with the mineral scutterudite CoAs_2 (reference 11). Starting from the conceptions on a covalent nature of the semiconductor-bonds and the data on the crystal-structure of CoSb_3 , the valence-states of the electrons in the cobalt- and antimony-atoms which lead to the formation of the semiconductor-bonds in the molecular structure $\text{Co} : \text{Sb} = 1 : 3$ and in the crystals of the ξ -phase of equal composition are schematically given here. Two schemes are suggested (figures 3 and 4). The first scheme is based on the assumption of a double-compound corresponding to the ξ -phase of Co_2Sb_6 . This scheme is in agreement with the crystallochemical characteristics of the ξ -phase, but contradicts the occurrence of the hole-conductivity in the compound in the case of antimony-excess (a deficiency of cobalt-atom in the lattice). The second scheme of the electron-valence-states of the atoms in a molecule of ordinary CoSb_3 does not contain these contradictions. It also explains the occurrence of the hole-conductivity in the case of antimony-

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excess: the absence of the cobalt-atom in the lattice leads to the formation of three holes in the valence zone, as the antimony-electrons participating in the formation of linkages with this atom remain connected with the neighboring cobalt-atoms (the coordination of antimony with regard to cobalt equals two). The deficiency of this scheme is a certain incongruity between the nature of the antimony-bonds (Sp -bonds) and the value of the valence-radius in the lattice (tetrahedron) in antimony. On the basis of the investigation given here the conclusion is drawn that the semiconductor-alloys of the ϵ -phase with antimony-excess with regard to stoichiometry show a peculiar nature. It is shown that the positive current-carriers of admixtures in $CoSb_3$ in the case of antimony-excess according to the scheme (figure 4) are not activated - but concentration-current-carriers. I. e. they develop due to the formation of a defective lattice in the case of a deviation of the concentration from the atomic relation $Co : Sb = 1 : 3$. Therefore the number of these current-carriers of admixture (in case that changes of concentration do not take place in the alloy) will not change with temperature. At a temperature close to the absolute zero the occurrence of superconductivity (like in metals) is to be expected in such materials. Inversely, at high temperatures where the activation of the own current carriers prevails the electric conductivity

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increases according to the usual behavior of the semiconductor. - The results of the alloying of the CoSb_3 -compound will be dealt with in a separate paper.

There are 4 figures, and 15 references, 8 of which are Slavic.

ASSOCIATION: Institute of Metallurgy imeni A. A. Baykov AS USSR. Moscow (Institut metallurgii imeni A. A. Baykova AN SSSR Moskva).

SUBMITTED: March 21, 1957.

AVAILABLE: Library of Congress.

1. Cobalt alloys-Analysis
2. Antimony alloys-Analysis

Card 4/4

DUDKIN, L.D.; ABRIKOSOV, N.Kh.

Alloying the semiconducting compound CoSb_3 . Fiz.tver.tela 1
no.1:142-151 Ja '59. (MIRA 12:4)
(Semiconductors) (Cobalt antimonides)

SOV/78-4-10-22/40

3(2)
AUTHORS: Dudkin, L. D., Dyul'dina, K. A.

TITLE: Investigation of the System Cobalt - Tellurium

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 10,
pp 2313 - 2319 (USSR)

ABSTRACT: Among the binary compounds with semi-conductor properties the substances of the type metal_{transition}-semi-conductor (metal_{transition} = transition metals, semi-conductor = semi-

conductor elements of the 3rd - 7th group of the periodic system) form a special group which has been little investigated so far. N. Kh. Abrikosov et al (Refs 1-3) carried out some investigations on antimonides. The present paper continues this series. A number of Co - Te-melts was investigated (Table 1) and the phase diagram was constructed (Fig 2). The system shows two interphases. The γ -phase melts with open maximum at approximately 1010°, the δ -phase corresponds to the compound CoTe₂ and is caused by the peritectic reaction $\delta + \text{liquid} \rightarrow \gamma$ at 749°. The γ -phase forms with Co an eutectic melting at 960°. The investigation of the micro-structure (Fig 4) confirmed the data of the thermal ana-

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Investigation of the System Cobalt - Tellurium

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lysis. The radiograph (Fig 5) reproduce well the phase transition at increasing tellurium concentration. The thermoelectric properties of the melts reveal distinctly the boundaries of the γ -phase. The continuous variation within the phase itself indicates the berthollid-like character of the structure. Since the number of structural defects of the γ -phase is of the same order of magnitude as the number of atoms, no semi-conductor properties may be expected. Both the γ - and δ -phase have apparently a metal structure. The δ -phase possesses a marcasite lattice, the γ -phase a lattice derived from CdJ_2 . [1) Abstracter's Note: disordered transition structures are denoted as berthollids (derived from the French chemist Berthollet)]. There are 6 figures, 1 table, and 11 references, 5 of which are Soviet.

SUBMITTED: June 21, 1958

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5(2,4)

AUTHORS:

Dudkin, L. D., Ostranitsa, A. P.

SOV/20-124-1-26/69

TITLE:

Ternary Semiconducting Compounds Coming Under the General
Formula $A^I B^V B_2^{VI}$ (Troynyye poluprovodnikovyye soyedineniya
 $A^I B^V B_2^{VI}$)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 1,
pp 94 - 97 (USSR)

ABSTRACT:

The compounds mentioned in the title are formed on the basis
of binary compounds from which one at least must be a semi-
conductor. The ratios of the molar concentrations between the
initial components correspond to those of simple integers.
The present paper deals with the elucidation of the existence
and of the physical chemical nature of the hypothetical compounds
under review where A^I is Cu, Ag, B^V - Sb, Bi, and B^{VI} - Se, Te
(Ref 1). Their formation is assumed from analogies with the
chalcopyrite-like group of semiconducting compounds
 $A^I A^{III} B_2^{VI}$ in ternary systems $A^I - B^V - B^{VI}$ on quasibinary
cross sections $A_2^{I,VI} B^{V,VI} - B_2^{V,VI} B_3^{VI}$ at a ratio of the components of

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Ternary Semiconducting Compounds Coming Under the
General Formula $A^{\text{I}}B^{\text{V}}B_2^{\text{VI}}$

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1:1, A^{III} being Al, Ga, In, Tl. In spite of the related chemical composition of $A^{\text{I}}B^{\text{V}}B_2^{\text{VI}}$ and $A^{\text{I}}A^{\text{III}}B_2^{\text{VI}}$ it may easily be stated that they are not isostructural. On the basis of corresponding binary compounds 8 ternary alloys were produced. Their composition is given in table 1. The investigation was performed according to a method similar to that described in reference 2. It was found that 4 compounds only: CuSbSe_2 , AgSbSe_2 , AgSbTe_2 and AgBiSe_2 do really exist. They crystallize direct from the melt. The microstructure of the alloys CuSbTe_2 and CuBiTe_2 is of eutectic nature; CuBiSe_2 and AgBiTe_2 have proved to be two-phase alloys. The heating- and cooling curves were constructed on one-phase alloys and the crystallization temperatures of the ternary compounds were determined from those curves (Table 2). The congruent character of the melting was confirmed. Table 2 shows the estimated coefficients of thermal conductivity. The determination results of the electric conductivity of the compounds under review as a function of temperature are given in figure 1.

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Ternary Semiconducting Compounds Coming Under the
General Formula $A^{I,IV,VI}B^VB_2$

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$CuSbSe_2$, $AgSbSe_2$, and $AgBiSe_2$ show dependences $\sigma(T)$ which are characteristic of semiconductors. By means of $\sigma(T)$ the activation energies of the current carriers in ternary compounds were calculated (Table 2). Powder-radiographs were taken. From the assumption that the scheme of the bindings (Fig 2) is characteristic of all compounds mentioned in the title, the authors deduced the qualitative conditions which determine their stability. There are 2 figures, 2 tables, and 5 references, 4 of which are Soviet.

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR
(Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences, USSR)

PRESENTED: August 8, 1958, by I. P. Bardin, Academician

SUBMITTED: July 29, 1958

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AUTHOR: Dudkin, L. D.

SOV/20-127-6-16/51

TITLE: On the Problem of Formation of the Semiconductor Phase in Systems With Transition Metals

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 6, pp 1203-1206 (USSR)

ABSTRACT: In the introduction, it is pointed out that the difference in conductivity of semiconductor compounds, one component of which is a transition metal, lies in the energy spectrum of the valency-d-electrons. In a number of papers, it was suggested to relate the conductivity with the existence or absence of an overlapping of the d-shells. It is suggested here to express in relative units the overlapping of the valency-d-shells in the atoms of the transition metals by some defined critical spaces between the valency shells. This value Δ is defined as a function of the distances between the atoms of the transition metals and their diameters, and these values are given for 21 compounds in table 1. All compounds with $\Delta > 14.5\%$ show semiconductor properties. Compounds with the structure type of NaCl are listed as examples in table 2; they all show semiconductor properties, and their value of Δ is larger than 14.5%. The silicon compounds of

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On the Problem of Formation of the Semiconductor Phase in Systems With Transition Metals

the transition metals of the fourth to sixth groups are compiled in table 3 which shows that only CrSi_2 has semiconductor properties, and that its value of Δ is the only one in this group exceeding 14.5%. Besides, the temperature dependence of CrSb is investigated, and the measurement results are compiled in a table. Finally, some further results of this investigation are discussed, and it is ascertained that the criterion obtained here can be used in the search for new semiconductor materials. There are 4 tables and 18 references, 7 of which are Soviet.

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR
(Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences, USSR)

PRESENTED: March 16, 1959, by I. P. Bardin, Academician

SUBMITTED: March 5, 1959

Card 2/2

ZORNINA, B.N., DUDKIN, L.D.

Investigating the thermoelectric properties of the compound
 CoSb_3 with the electroactive impurities Sn, Te, and Bi. Fiz.
tver.tela 1 no.12:1821-1827 D '59. (MIRA 13:5)

1. Institut metallurgii imeni A.A.Baykova AN SSSR, Moskva.
(Cobalt antimonide)

DUDKIN, L.D

	Superconductivity in polycrystalline materials. Moscow, 1957	507.046
	Thermal stability of solid polymers. 1957. 340 pages. 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AUTHOR: Dudkin, L. D.

TITLE: Crystallochemical Characteristic Features of Semiconducting Compounds of Transition Metals

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 3, pp. 397-403

TEXT: In the present paper, the author suggests two additional criteria for the formation of semiconducting phases in systems with transition metals, and on the basis of these phases the character of conductivity of a number of compounds having the structure of NiAs , NaCl , CrSi_2 , MoSi_2 , CuAl_2 , and FeS_2 is explained or predicted. On the basis of the assumption that the degeneration of electronic energy states in the band takes place during chemical interaction, i.e., when the exchange effect is realized by electrons, as is the case with a critical interatomic distance, the following quantitative criterion is given, which determines the energy state of d-electrons in transition metal compounds. The type of conductivity is determined by the amount of

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Crystallochemical Characteristic Features
of Semiconducting Compounds of Transition
Metals

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$$\Delta = \frac{(M-M)-d_M}{(M-M)} \cdot 100 ; \Delta \text{ is given in } \%, (M-M) \text{ is the least interatomic}$$

distance of the transition metal in the compound, and d_M is the diameter of the metal atoms for the coordination number of this compound. The change of the d-electron spectrum from the band type to a discrete character takes place with relative distances between the valence shells of the metal atoms corresponding to $\Delta \approx 14.5\%$. When $\Delta < 14.5\%$ the wave functions of the d-electrons overlap, and the energy levels in the band are degenerate. In this case the compound has metallic conductivity, irrespective of the binding character metal-metal, due to the "free" electrons in the d-band. When $\Delta \geq 14.5\%$ the d-electrons occupy the discrete energy levels and do not participate in conduction. If, furthermore, the condition of a saturation of covalent bonds is satisfied, compounds with $\Delta > 14.5\%$ were bound to be semiconductors. The Tables contain the Δ -values for a number of compounds, and their known or theoretically predicted type of conductivity is given. Hence, metallic

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Crystallochemical Characteristic Features
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character is predicted for TiS , CoS , and NiS , and semiconductor character for VP and FeSe according to this criterion. The second criterion for the formation of semiconducting phases in systems with transition metals refers to compounds in which the metal atoms form octahedral hybrid d^2sp^3 bonds. With the exception of FeS_2 itself, all compounds of this structure have a Δ which is higher than the critical one. It may be assumed that in these compounds the metal atoms form hybrid d^2sp^3 bonds and the atoms of the electronegative component sp^3 bonds. The general scheme of the bonds between the atoms of FeS_2 -type compounds is shown in Fig. 1. It may be concluded from the bond types that manganese and iron dichalcogenides have semiconductor character, whereas the corresponding cobalt and nickel compounds have a metallic one (Table 6). Academician A. F. Ioffe, I. S. Zolotarev, V. G. Lev, K. A. Dvul'dina, and V. I. Vavdanich are mentioned. There are 2 figures, 6 tables, and 19 references: 8 Soviet, 3 British, 2 Canadian, and 1 Japanese.

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Crystallochemical Characteristic Features
of Semiconducting Compounds of Transition
Metals

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SUBMITTED: June 23, 1959

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AUTHORS: Dudkin, L. D., Vaydanich, V. I.

TITLE: The Character of Electrical Conductivity of Some Compounds of Transition Metals With CuAl₂-Type Lattice

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 3, pp. 404-405

TEXT: In Refs. 1,2 the authors gave criteria for the formation of semi-conducting phases. One of them is connected with the possible change in the energy spectrum of unbound d-electrons, and the conduction type is

determined by the value of $\Delta = \frac{(M-M)-d_M}{(K-M)} \cdot 100$, where (M-M) is the

shortest distance between two atoms of transition metals, and d_M the diameter of metal atoms. If $\Delta < 14.5\%$ the compound shows metallic conductivity, if $\Delta > 14.5\%$ it is a semiconductor. Hence, the compounds KSn_2 , FeSn_2 , CoSn_2 , TiSb_2 , and VSb_2 were bound to have metallic conductivity (see Table p.404). For the purpose of examining this problem

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of Some Compounds of Transition Metals With
CuAl₂-Type Lattice

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the authors analyzed these compounds for the type of their conductivity. The production of the specimens is described in detail. A thermal analysis of the heating of the equilibrium specimen and the cooling of the melt showed that the incongruent melting temperatures of TiSb₂ and VSb₂ are 1,010 and 900°C; crystallization starts at 1,030 and 1,120°C, respectively. In VSb₂, an additional effect was observed at 870°C (polymorphic transformation). In all alloys, conductivity and the coefficient of the thermoelectric emf were measured; the results are in agreement with the conductivity types predicted according to Δ. For VSb₂ and FeSn₂ which showed the least conductivity, the temperature course was recorded (Fig.). The values of σ and α at room temperature and the course of the curve σ(T) also indicate metallic conductivity. There are 1 figure, 1 table, and 5 references: 2 Soviet, 1 US, and 2 German.

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The Character of Electrical Conductivity
of Some Compounds of Transition Metals With
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Dudkin, L. D.

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AUTHORS: Dudkin, L. D., Vaydanich, V. I.

TITLE: The Character of the Chemical Bonds and the Electrical Conductivity of Compounds of the FeS_2 Structural Type

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 7, pp. 1526-1532 ✓B

TEXT: The authors wanted to study the thermoelectric properties of a series of compounds of this group with antimony, tellurium, and selenium in order to establish whether the atoms of the transition metals in these compounds have hybrid- d^2sp^3 bonds. The results of relevant papers are discussed in the introduction, and next, the authors discuss the methods of preparing the specimens and of conducting the investigation. The initial substances exhibited a high degree of purity. The specimens obtained after complicated melting, annealing, pulverization, and pressing treatments, and final thermal treatment were submitted to a microstructural and a thermal analysis (with a pyrometer by N. S. Kurnakov). The electrical resistivity and the thermo-emf were measured in a compensating circuit with a potentiometer of the type WNTB-1 (PPTV-1). The magnetic susceptibility was

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The Character of the Chemical Bonds and the
Electrical Conductivity of Compounds of the
 FeS_2 Structural Type

S/181/60/002/007/022/042
B006/B060

determined by a balance method. The microstructure of cast specimens is shown in Fig. 1 (FeTe_2) and Fig. 2 (MnTe_2). The specimens with selenium (FeSe_2 and CoSe_2) exhibited a highly distorted peritectic picture (Table 1).

To investigate the thermoelectric properties it was necessary to prepare special test pieces; the data of the specimens exhibiting the highest conductivity are tabulated in Table 2. Only CoSe_2 ($\sigma > 10^3 \text{ ohm}^{-1} \cdot \text{cm}^{-1}$) showed metallic conductivity, the other four (FeS_2 , MnTe_2 , FeTe_2 , and FeSe_2)

proved to be semiconductors. To get a closer insight and to determine the activation energy of the carrier, the temperature dependence of electrical conductivity was examined. Figs. 3 - 6 show this for the four compounds. The curves $\ln \sigma = f(T)$ show two salient points for FeSe_2 , which, referred to the range of intrinsic conductivity, points to different values of the activation energy, i.e., two bond types: a weak type (Se-Se with $\Delta E = 0.60 \text{ eV}$) and a strong one (Fe-Se with $\Delta E = 0.95 \text{ eV}$). The width of the forbidden band (0.37 eV) corresponds to an impurity activation. A determination of susceptibility (Fig. 7) indicates that FeSe_2 is weakly

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The Character of the Chemical Bonds and the
Electrical Conductivity of Compounds of the
 FeS_2 Structural Type

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ferromagnetic. The results are discussed in the final part of the paper and compared with those of other authors (Table 3). The results obtained by considerations on the binding character are shown in a figure (Fig. 8). There are 8 figures, 3 tables, and 18 references: 7 Soviet, 2 US, 2 German, 1 Canadian, 1 Japanese, and 3 Scandinavian.

ASSOCIATION: Institut metallurgii im. A. A. Baykova AN SSSR Moskva
(Institute of Metallurgy im. A. A. Baykov of the AS USSR,
Moscow)

SUBMITTED: October 2, 1959

Card 3/3

S/576/61/000/000/015/020
E021/E120


AUTHORS: Dudkin, L.D., and Vaydanich, V.I.

TITLE: Electro-physical properties of several compounds of the transition metals of the type $M_T B_2$

SOURCE: Soveshchaniye po poluprovodnikovym materialam, 4th. Voprosy metallurgii i fiziki poluprovodnikov; poluprovodnikovyye soyedineniya i tverdye splavy. Trudy soveshchaniya. Moscow, Izd.-vo AN SSSR, 1961. Akademiya nauk SSSR. Institut metallurgii imeni A.A. Baykova. Fiziko-tekhnicheskii institut. 113-122

TEXT: The present work gives results of a study of the electro-physical properties of compounds of the transition metals (M_T) in the series Ti-Ni and tin, antimony, selenium or tellurium (denoted by B). The compounds have the structure $M_T B_2$. The initial materials were: 99.98% Ti, 99.0% V, 99.97% Cr, 99.9% Mn, 99.99% Co, 99.9999% Ni, 99.999% Sn, 99.999% Sb, 99.98% Se, and 99.9% Te. The compounds were synthesized in evacuated quartz vessels, with the exception of compounds of titanium. The most suitable material for use with titanium was found to be

Card 1/3



Electro-physical properties of

S/576/61/000/000/015/020
E021/E120

zirconium oxide. The samples of FeSb_2 , TiSb_2 and VSb_2 were homogenized at 550-630 °C for 30-35 days. The alloys containing tin, tellurium and selenium were heated gradually from 200 °C to 450 °C, with the total heat-treatment time of 45-50 days for selenium and tellurium alloys and 90 days for tin alloys. Measurement showed that compounds with CuAl_2 -type structure (MnSn_2 , FeSn_2 , CoSn_2 , TiSb_2 and VSb_2) possessed metallic type of conduction. Compounds with FeS_2 -type structure (FeSb_2 , MnTe_2 , FeTe_2 and FeSe_2) were semiconductors except for CoSe_2 which possessed metallic properties. The results of measurements on compounds with CdI_2 -type structure (TiFe_2 , CrTe_2 and NiTe_2) were considered in more detail. X-ray and thermal analyses were carried out together with electrical and magnetic measurements. It was shown that only chromium ditelluride possessed semiconducting properties. TiTe_2 and NiTe_2 possess metallic type of conduction. The results of the thermal analysis are given in Table 2. A probable form of the phase diagram is constructed for the system M_r -B showing continuous transition between 1:1 compounds (NiAs type) and 1:2 compounds (CdI_2 type). Hypothetical schemes for the inter-atomic bonds in CrTe_2 and CrSe_2 . Card 2, 3

Electro-physical properties of ...

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E021/E120

and also for the transition compounds NiTe and NiTe₂ are presented.

There are 9 figures, 3 tables and 14 references: 7 Soviet-bloc and 7 non-Soviet-bloc. The English language references read as follows:

Ref. 1: M. Hansen. Constitution of binary alloys. New York, 1958.

Ref.11: E. Mooser, W.B. Pearson, J. of Electr., 1956, v.1, 629.

Ref.12: W.B. Pearson, Canad. Journ. of Phys., 1957, v.35, 886.

Table 2

Compound	Temperature of Liquidus, °C	Temperature of Solidus, °C
TiTe ₂	> 1250	~ 470
CrTe ₂	1194	~ 540
NiTe ₂	857	~ 600

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5 2400

1087, 1043 2209

30028
S/020/61/141/001/010/021
B103/B147

AUTHORS: Dudkin, L. D., and Kuznetsova, Ye. S.

TITLE: Study of the system Mn - Si in the range rich in silicon

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 1, 1961, 94 - 97

TEXT: The existence of $MnSi_2$ in the system Mn-Si is not sufficiently founded (Ye. N. Nikitin, Fiz. tverd. tela, 1, 340 (1959)), and the data on the formation of the disilicide and on the phase diagram are contradictory. For these reasons, the authors studied the range rich in Si of the system Mn-Si. They used Si (99.998%) prepared according to Beketov [Abstracter's note: method not stated] and electrolytic Mn remelted twice in vacuo with traces of Al, Si, and Cu, as well as with <0.001% Pb, Mo, Ti, and Co. Phases corresponding to the phase diagram were synthesized by melting together the initial components in evacuated and sealed quartz ampuls by means of high-frequency heating. After cooling in air the samples were annealed under argon at 1000°C for 200 hr. Heating curves for equilibrium samples were plotted at 600 and 1200°C,

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30028

S/020/61/141/001/010/C21

B103/B147

Study of the system Mn - Si...

and a thermal analysis was conducted. Sample and standard (Si) were molten in evacuated Stepanov vessels [Abstracter's note: vessel not stated]. The series of alloys produced contained 46 - 55% Mn. It was found that cast and annealed $MnSi_2$ samples were not monophase but contained considerable Si separations. On the basis of the microstructure of samples rich in Si, no $MnSi_2$ phase was found to occur in the system

Mn-Si. Neither were there any phase transformations in the range of primary Si crystallization. In alloys richer in Mn, a transformation is supposed to occur in the corresponding part of the system, which leads to a homogeneity of the sample with 46% Si. This Si content corresponds to the stoichiometric ratio of components of 3:5. Further, Mn_3Si_5 was found to have a narrow homogeneity range which corresponds to a dissolution of about 0.5% of excess Si and Mn atoms in the compound. Fig. 2 shows the phase diagram for part of the system. Crosses denote the thermal effects of M. Hansen (Ref. 5, see below). The diagram shows that Mn_3Si_5 is formed by a peritectic reaction from MnSi and from the liquid at 1159°C. The eutectic of Mn_3Si_5 with Si corresponds to a Si content of ~49%, and melts

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Study of the system Mn - Si...

30028
S/020/61/141/001/010/021
B103/B147

at a temperature some 10°C lower ($\sim 1149^{\circ}\text{C}$). The composition of this compound is very similar to that of the liquid phase which corresponds to the nonvariant peritectic transformation. For this reason, the formation process of Mn_3Si_5 takes place during crystallization, and the cast samples do not show the characteristic patterns as correspond to the hardened peritectic transformation. These conclusions were confirmed by Debye patterns. A narrow homogeneity range on the basis of Mn_3Si_5 causes a complicated dependence of the thermoelectric properties on Si content. The dissolution of excess Mn and Si atoms is accompanied by the formation of additional current carriers. This is assumed to be connected with the formation of a defective lattice. The assumption is confirmed by a considerable increase in electrical conductivity in the range of the solid solution. The thermo-emf increases slightly at the same time. The change of the thermoelectric characteristics in the two-phase range is due to the effect of different secondary phases. Up to about 500°C , a metallic dependence $\ln\sigma(1/T)$ prevails; at higher temperatures, the measured values lie on a straight line. The activation energy of the current carriers is ~ 0.2 ev. A. S. Bereshnoy's monograph: Kremniy i yego binarnyye sistemy

Card 3/5 4

30028

S/020/61/141/001/010/021

B103/B147

Study of the system Mn - Si...

(Silicon and Its Binary Systems), Kiev, 1958, is mentioned. There are 4 figures and 9 references: 4 Soviet and 4 non-Soviet. The reference to the English-language publication reads as follows: Ref. 5: M. Hansen, Constitution of Binary Alloys, N. Y., 1958. X

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR
(Institute of Metallurgy imeni A. A. Baykov of the
Academy of Sciences USSR)

PRESENTED: June 12, 1961, by I. I. Chernyayev, Academician

SUBMITTED: June 8, 1961

Card 4/8 4

S/849/62/000/000/010/016
A006/A101

AUTHOR: Dudkin, L. D.

TITLE: Some regularities in the formation of semiconductor phases in systems with transition metals

SOURCE: Vysokotemperaturnyye metallokeramicheskiye materialy, Inst. metalloker. i spets. spl. AN Ukr.SSR., Kiev, Izd-vo AN. Ukr.SSR., 88 87 - 95

TEXT: In semiconductor compounds, the intermediate phases in systems with transition metals and elements of the IV - VII group (M_{trans} - B), have not been sufficiently studied. It was experimentally found that sharp changes in the nature of conductivity were caused by varying chemical composition, the bond type of M_{trans} - B remaining constant. Therefore additional criteria, characterizing the nature of conductivity in phases of the aforementioned systems were to be determined. The author assumes that the energy state of d-electrons can change from a discrete to a zonal state with varying distances between metallic atoms

Card 1/3

Some regularities in the formation of...

S/849/62/000/000/010/016
A006/A101

in the crystals of corresponding compounds and thus entail changes in the type of conductivity. Two additional criteria were developed: Critical value Δ determines changes in the energy spectrum of d-electrons. It is $\frac{(Me-Me) - d_{Me}}{(Me-Me)} \cdot 100$.

- 14.5%. (Me-me) is the shortest distance between metal atoms in the compound; d_{Me} is the diameter of metal atoms for the coordination number, corresponding to the given compound. If $\Delta < 14.5\%$, the d-electrons will determine the metal conductivity type of the compound; if $\Delta > 14.5\%$ the d-electrons do not participate in the conductivity. The compound will then be semiconductor, in case of saturated Me_{trans} - B bonds. The second criterion is applicable to systems where the metallic atoms form hybridic d^2sp^3 octahedral bonds. In this case the number of electrons participating in the formation of metal - non metal bonds, should not exceed 6. With the use of these two criteria the nature of conductivity is explained and predicted for a number of structural type systems, including NiAs, NaCl, CrSi₂, CuAl₂ and FeS₂. The results are graphically illustrated. There are 6 tables and 2 figures.

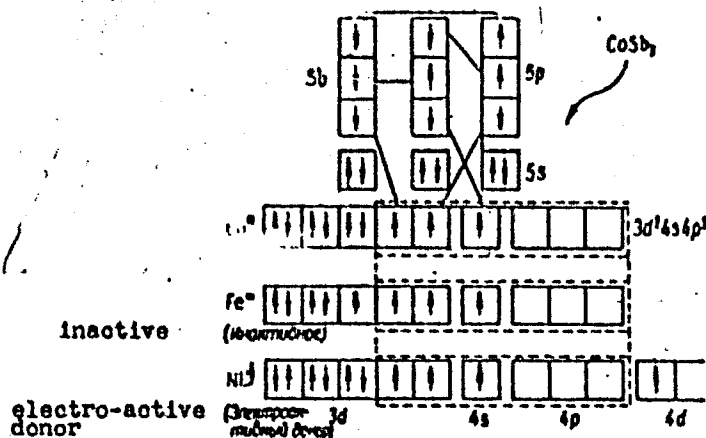
Card 2/3

Some regularities in the formation of...

S/849/62/000/000/010/016

A006/A101

Figure 2. Scheme of bonds in cobalt triantimonide and electron-valent schemes of additional iron and nickel atoms, substituting cobalt in CoSb_3 .



Card 3/3

DEDKIN, L.D.; KUZNETSOVA, Ye.S.

Investigating the electrophysical properties of alloys on a base of chromium and manganese semiconductor disilicides. Porosh. met. 2
no.6:20-31 N-D '62. (MIRA 15:12)

1. Institut metallurgii imeni A.A.Baykova AN SSSR.
(Semiconductors—Thermal properties) (Chromium-silicon alloys)
(Manganese-silicon alloys)

ACC NR: AP7005615

SOURCE CODE: UR/0413/67/000/002/0052/0053

INVENTOR: Belevtsev, A. T.; Dudkin, L. D.; Yerofeyev, R. S.; Lidorenko, N. S.;
Khanin, M. A.

ORG: none

TITLE: A method for manufacturing thermoelements. Class 21, No. 190448 [announced by the All-Union Scientific Research Institute of Current Sources (Vsesoyuznyy nauchno-issledovatel'skiy institut istochnikovtoka)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1967, 52-53

TOPIC TAGS: thermocouple, temperature sensitive element, *CURRENT CARRIER*

ABSTRACT: A method of making thermocouples with a variable concentration of electric current carriers along the operating temperature gradient is introduced. To assure both optimum variable concentration of the carriers and thermodynamic stability of the elements, the amount of alloying impurities in the carrier concentration is determined by the specific solubility of the alloying impurities, thus assuring the desired relationship between the carrier concentration and temperature—i.e., $n = T^{3/4}$.

[JR]

SUB CODE: 09/ SUBM DATE: 29Jul65

Card 1/1

UDC: 621.362.1

ACC NR: AP7004401

SOURCE CODE: UR/0226/67/000/001/0073/0080

AUTHOR: Voronov, B. K. (Moscow); Dudkin, L. D. (Moscow); Kiryukhina, N. I. (Moscow); Trusova, N. N. (Moscow)

ORG: none

TITLE: Study of the Cr-Si system in the disilicide region

SOURCE: Poroshkovaya metallurgiya, no. 1, 1967, 73-80

TOPIC TAGS: chromium, ^{silicide phase} silicon, system, stoichiometric mixture, microhardness, heat conductivity, carrier density, ~~single crystal material~~ defect, ~~intermetallic~~, ~~stoichiometry~~, powder metallurgy, ~~chromium alloy~~, ~~chromium disilicide~~, polycrystal, ~~Cochran's method~~

ABSTRACT: It was found that the chromium disilicide phase, crystallizing at $\text{CrSi}_{1.95}$, expands with a drop in temperature, shifts toward *nilicon*, and at 1250C corresponds to the saturated composition of $\text{CrSi}_{1.98-1.99} - \text{CrSi}_{2.02-2.03}$. The stoichiometric composition corresponds to the minimum of microhardness, the maximum of heat conduction, the minimum value of hole concentration, the

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ACC NR: AP7004401

minimum effective density of states of the carriers, and the maximum value of the prohibited zone width, ~ 0.7 ev, which falls near the single-phase boundaries to 0.4—0.5 ev. It is assumed that the high hole concentration ($5 \cdot 10^{20}/\text{cm}^3$) in the stoichiometric mixture is due to intracrystalline defects. With deviation from stoichiometry toward chromium, the defects are reduced, and at $\text{CrSi}_{1.95}$ of stretched single crystals, it approaches 0, while on deviation toward excess silicon, it remains approximately constant. One molecular defect yields from 0.5 to 1 carrier into the valence band. Orig. art, has: 2 figures and 2 tables. [Based on authors' abstract] (NT)

SUB CODE: 11/^{19/}SUBM DATE: 30May66/ORIG REF: 013/OTH REF: 003/

Card 2/2

DUPKIN, L.M.

- [illegible]

report submitted at the Soviet Conference on Problems in the Application of Mathematical Methods in Economic Research, Leningrad, 19-21 January 1960.

DUDKIN, L.M., red.; SHILIN, I.G., red.; YERMAKOV, M.S., tekhn. red.

[Problems of the optimal planning, projection and administration of production] Problemy optimal'nogo planirovaniya, proyektirovaniya i upravleniya proizvodstvom; trudy teoreticheskoi konferentsii, sostoivsheisya na ekonomicheskom fakul'tete MGU v marte 1962. Moskva, Izd-vo Mosk. univ., 1963. 546 p.

(MIRA 16:9)

1. Teoreticheskaya konferentsiya "Problemy optimal'nogo planirovaniya, proyektirovaniya i upravleniya proizvodstvom," 1962. 2. Moskovskiy Gosudarstvennyy universitet (for Shilin, Dudkin). (Russia—Economic policy)

SHCHALOKOV, Ya.M.; LUKIN, L.N.; MAKAROV, A.P.

Do we need a cut-off valve? Gaz. prom. 3.10.11:32-35 '63.

(HRA 17:11)

1. Uralenargometalurgprom, Sverdlovsk (for Shchalekov).
2. "Bryanskogaz" (for Lukin). 3. Upravleniye tsentral'nogo okruga Gosudarstvennogo komiteta pri Sovete Ministrov SSSR po razrabotke za bezopasnyy vedeniye rabot v pechishlennosti i gornomu nadzoru (for Makarov).

DUDKIN, M.I.
IVANOV, N.A., professor; PANTAZI, V.D.; DUDKIN, M.I. (Leningrad)

Case of acanthosis nigricans. Vrach.delo no.71753-755 J1 '57.
(MIRA 10:8)

1. Kafedra koshnykh i venericheskikh bolezney (nach. - polkovnik
meditsinskoy sluzhby professor S.Ye. Gorbovitskiy) Voenno-morskoy
meditsinskoy Akademii
(SKIN--DISEASES)

KARDASHENKO, B.Ya.; OLISEVICH, V.E.; DUDKIN, M.I.

Local steroid therapy of some dermatoses. Sov.med. 25 no.1:125-127
Ja '62. (MIRA 15:4)

1. Iz kozhnogo dispansera No.7 Kiyevskogo rayona Moskvyy (glavnyy
vrach B.Ya.Kardashenko).
(SKIN—DISEASES) (STEROID HORMONES)

DODKIN, M.S.

Xylan. Usp.khim. 31 no.10:1179-1190 0 '62. (MIRA 15:11)

1. Odesskiy tekhnologicheskii institut imeni Lomonosova.
(Xylans)

10

CA DUDKIN, M.S.

Kinetics of the decomposition of some derivatives of acetylene-dicarboxylic acid. M. S. Dudkin (Odessa State Teachers Inst.). *Zh. Obshch. Khim.* (J. Gen. Chem.) 29, 1729-34 (1955). — In 0.027 M soln. in H_2O , the decompn. $CH_3COONH_2(II) \rightarrow HC(COOH) + CO_2$ is a 1st-order reaction; at 60° and 80°, $k = 1.3 \times 10^{-4}$ and 1.3×10^{-3} sec.⁻¹. The decompn. of $HOCC(COOH)(III) \rightarrow HC(COOH) + CO_2$ is approx. 1st order at 60°, $k = 1.08 \times 10^{-3}$ sec.⁻¹ in 0.027 M soln. in H_2O , 1.80×10^{-3} sec.⁻¹ in 0.027 M soln. in toluene. However, the relative rate of decompn. falls with the progress of the reaction. The decompn. of $HOCC(COOH)(III) \rightarrow HC(COOH)(IV) + CO_2$ is of the 1st order, $k = 2.7 \times 10^{-3}$ sec.⁻¹, only at 60°. At 80° and at 98.5°, the initially very high rate becomes slowed down very quickly, owing to the sequence of reactions $IV + H_2O \rightarrow C_2H_2 + KHCO_3$; $2KHCO_3 \rightarrow K_2CO_3 + CO_2 + H_2O$; $2III + K_2CO_3 \rightarrow 2C(COOH)(V) + H_2O + CO_2$, and $III + KHCO_3 \rightarrow V + H_2O + CO_2$; V is evidently much more stable than III. The degree of decompn. of III in 0.05 N soln. in H_2O , at 60°, 80°, and 98.5°, is, resp., 18.81, 80.83, and 94.21%, in 120 min. At 60° and 80°, the amt. of IV found is very close to the amt. calcul., but at 98.5° it is 7.2-7.9% lower. That this discrepancy is due to further decompn. of IV, particularly marked at the higher temp.,

was demonstrated by the kinetic curve of the decompn. of IV, showing well acceleration at 98.5°, and by analyses for CO_2 and C_2H_2 in the decompn. of III; at 60, 80, and 98.5°, CO_2 began to appear after 45, 10, and 5 min., resp., whereas C_2H_2 did not appear for 180 min. at 60°, and began to appear only after 100 and 30 min., resp., at 80 and 98.5°. This indicates the consecutiveness of the production of IV from III and of the subsequent decompn. of IV with formation of C_2H_2 . This was further corroborated by the presence of both $KHCO_3$ and K_2CO_3 in the products. N. Thom

DUDKIN, M.S.; KERTOTMAN, R.Ya.

Quantitative determination of organic substances found in Black Sea
seaweeds. Ukr.khim.zhur.17 no.2:217-223 '51. (MLBA 9:9)

1.Odesskiy uchitel'skiy institut.
(Black Sea--Algae)

"APPROVED FOR RELEASE: 08/25/2000

CIA-RDP86-00513R000411430001-7

APPROVED FOR RELEASE: 08/25/2000

CIA-RDP86-00513R000411430001-7"

"APPROVED FOR RELEASE: 08/25/2000

CIA-RDP86-00513R000411430001-7

~~SECRET~~
~~TOP SECRET, M.S.~~

APPROVED FOR RELEASE: 08/25/2000

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CIA-RDP86-00513R000411430001-7

APPROVED FOR RELEASE: 08/25/2000

CIA-RDP86-00513R000411430001-7"

DUDKIN, M.S.

Category: Ukraine/General Division. Problems of Teaching.

A-7

Abs Jour: Referat Zh.-Biol., No 9, 10 May, 1957, 35002

Author : Dudkin, M.S.

Inst : not given

Title : The Study of the Chemical Composition of Corn in Secondary Schools

Orig Pub: Radianska shkola, 1956, No 1, 63

Abstract: No abstract.

Card : 1/1

-10-

"APPROVED FOR RELEASE: 08/25/2000

CIA-RDP86-00513R000411430001-7

APPROVED FOR RELEASE: 08/25/2000

CIA-RDP86-00513R000411430001-7"

DUDKIN, M.S.; SHKLOVSKIY, I.Sh.

Hydrolysis of hemicelluloses in the lemma of barley. Izv. vys.
ucheb. zav.; pishch. tekhn. no.1:36-42 '58. (MIRA 11:8)

1. Odeskii tekhnologicheskii institut imeni I.V. Stalina, Kafedra
organicheskoy khimii.
(Barley) (Hemicellulose) (Hydrolysis)

DUDKIN, M.S.

Chromatographic analysis of monosaccharides found in millet
lemmas and buckwheat hulls. Izv. vys.ucheb. zav.; pishch. tekhn.
no. 2:147-150 '58. (MIRA 11:10)

1. Odesskiy tekhnologicheskii institut imeni I.V.Stalina, Kafedra
organicheskoy khimii.

(Monosaccharides)

(Millet)

(Buckwheat)

DUDKIN, M.S.; STARICHKOVA, V.Ye.

Effect of the vibration milling on the hydrolysis of polysaccharides of millet hulls. Izv.vys.ucheb.zav.; pishch.tekh. no.5:105-109 '58. (MIRA 11:12)

1. Odesskiy tekhnologicheskii institut imeni I.V.Stalina, kafedra organicheskoy khimii.
(Millet) (Polysaccharides) (Hydrolysis)

80319

SOV/81-59-7-26009

5.3832

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 7, p 610 (USSR)

AUTHOR: Dudkin, M.S.

TITLE: High-Molecular Compounds on the Base of Acyl Derivatives of Urea.
Communication IV. The Interaction of Acetylurea With Formaldehyde

PERIODICAL: Tr. Odessk. tekhnol. in-ta im. I.V. Stalina, 1958, Vol 9,
pp 45 - 48

ABSTRACT: During the interaction of acetylurea (I) with formaldehyde (II) at first methylolacetylurea is formed which condenses later on forming $(-N(COCH_3)CONH-CH_2)_n$ - with a polymerization degree of 5 - 6 and a molecular weight of 600 - 700. The value of the specific viscosity of the polycondensate depends on the nature of the solvent and is caused by its polarity. The following values are cited below: the solvent, its dipole moment $M \cdot 10^{18}$, the specific viscosity of the product of interaction of I with II obtained in the absence of a catalyst and in the presence of NH_4OH : acetone (III), 2.95; 0.0714; 0.0536; ethanol, 1.70;

Card 1/2

80319

SOV/81-59-7-26009

High-Molecular Compounds on the Base of Acyl Derivatives of Urea. Communication IV. The Interaction of Acetylurea With Formaldehyde

0.063; 0.1315; dioxane, 0.4; 0.4781; 0.1575. The highest value of viscosity in III is due to considerable solvation which makes the aggregation of the molecules difficult. In dioxane, in the case of low solvation of the solvent, the degree of aggregation attains a high value which leads to an increase in the viscosity of the solvent. Communication III see RZhKhim, 1957, 52733.

Ye. Rodionova

Card 2/2

DUMKIN, M.S. (Odessa)

Polysulfide rubber. Khim. v shkole 13 no.5:57-59 8-0 '58.

(MIRA 11:9)

(Rubber, Synthetic)

DUDKIN, M.S., kand. tekhn. nauk; SKORNYAKOVA, N.S., kand. khim. nauk.

Fractional crystallization of whale oil acids with urea. Masl.-shir.
prom. 24 no.3:19-21 '58. (MIRA 11:4)

1. Odesskiy tekhnologicheskii institut imeni I.V. Stalina.
(Whale oil) (Acids, Fatty) (Urea)

DUDKIN, M.S.

Hydrolysis of hemicelluloses of millet flower pellicles
and of buckwheat hulls. Izv.vys.ucheb.sav.; pishch.tekh. no3:
48-53 '59. (MIRA 12:12)

1. Odesskiy tekhnologicheskiy institut imeni I.V.Stalina.
Kafedra organicheskoy khimii.
(Millet) (Buckwheat) (Hemicellulose)

DUDKIN, M.S.

Hydrolysis of the hemicellulose of barley and rice hulls.
Izv.vys.ucheb.zav.; pishch.tekh. no.4:40-44 '59.
(MIRA 13:2)

1. Odesskiy tekhnologicheskii institut imeni I.V.Stalina.
Kafedra organicheskoy khimii.
(Hemicellulose) (Grain)

DUDKIN, M.S.; PILIPENKO, L.S.

Prospects for the utilisation of pentosan-containing raw materials of the Odessa Province. *Gidroliz.i lesokhim.prom.* 12 no.8:25 '59. (MIRA 13:4)

1. Odesskiy tekhnologicheskii institut (for Dudkin). 2. Odesskiy sovmarkhoz (for Pilipenko).
(Odessa Province--Pentosan)

5.3600

75692
SOV/80-32-10-41/51

AUTHOR: Dudkin, M. S.

TITLE: Brief Communications. Reaction of Adipic and Sebacic Acids With Urea and Acetylurea

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 10, pp 2347-2348 (USSR)

ABSTRACT: Reaction of adipic and sebacic acids with urea and acetylurea on heating was studied. Adipic acid with urea, at 160°, gave the diamide of adipic acid, mp 224-225°, in 22.8% yield. The same reaction at 230° gave the same product in 32% yield. Sebacic acid with urea at 160° gave the amide of sebacic acid, mp 172-173°, in 32% yield. The same reaction at 230° gave the amidoureide of sebacic acid, mp 182-183°, in 34.5% yield. Adipic acid with acetylurea at 230° (molar ratio 1 to 1) gave the amide of adipic acid with mp 205-206°, in 26% yield. The same reaction (molar ratio of 1 sebacic acid to 2 urea) gave the diamide of sebacic acid, mp 223°, in 34% yield. Sebacic acid with acetylurea at 230° (molar ratio

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1 to 1) gave the amide of sebacic acid with mp 172° ,
in 28% yield. The same reaction (molar ratio of 1
sebacic acid to 2 acetylurea) gave the diamide of
sebacic acid, mp 208° , in 39% yield. There are 7 ref-
erences, 3 Soviet, 1 German, 1 Swiss, 1 Indian, 1 U.S.
The U.S. reference is: Roc, E., Scanlan, J., Swern,
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Card 2/2

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(Nitric acid) (Polysaccharides)